

**REMARKS**

Claims 1, 13 and 35-38 were rejected under 35 U.S.C. 112, first paragraph, as being indefinite for the reasons stated by the Examiner. Claims 1, 13 and 35-38 have been amended, based on the language of the specification, to clarify and more accurately define the subject matter of the present invention.

More specifically, the claims have been amended to recite that the first and second regions are included in the plurality of regions, for example as shown Figs. 1, 2 and 4 and their related description.

The Examiner contends that the term “substantially” is a relative term that renders the claims indefinite. It is well established that such a term is properly used in claims, subject to interpretation by the specification and as commonly defined, for example in various dictionaries and by those of ordinary skill in the various arts involved. Such term has been discussed in many cases such as *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 8837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988); *Amhil Enterprises Ltd. V. Wawa, Inc.* 81 F3d 1554, 38 USPQ2d 1471 (Fed. Cir. 1996); and *Zodiac Pool Care, Inc. v. Hoffinger Industries, Inc.*, 206 F3d 1408, 54 USPQ2d 1141 (Fed. Cir. 2000), among others. Use of “substantially” with the limiting words “completely through” in a phrase such as “extending substantially completely through the matrix” as interpreted from the specification means functionally the same as or very close to completely through. The present invention relates to the provision of a plurality of regions generally in the form of discrete columns transversely functionally completely through the matrix of an article. The present use of the term “substantially” in that context properly provides reasonable tolerance in the normal, usual type of interpretation commonly made by one of ordinary skill in the art from completely through without regard to incidental, minor surface features. It is proper in view of the specification, common definitions and common practice to provide a claim with reasonable tolerance in its interpretation of scope.

Claims 35 and 37 were rejected as stated based on the term “different” used in respect to reinforcing fibers. The meaning of that term “different” in respect to

reinforcing fibers is described extensively throughout the specification in connection with their differences in coefficient of thermal expansion (CTE) resulting in operating stress resistance amounts, for example on page 2, lines 23-25; page 4, line 28 through page 5, line 5. Consistent with such description, claims 35 and 37 have been amended to clarify that the combinations of reinforcing fibers have different coefficients of expansion (CTE).

Claims 36 and 38 were believed to be unclear by the Examiner for the reasons stated. Based on the specification on page 8, lines 1 – 22, claims 36 and 38 have been amended to clarify that the pattern is repeated in a fabric member, and that a plurality of the members are disposed in a composite article stack, maintaining the same relative position of the pattern through the article stack. This structure provides the regions transversely through the article.

Claims 1, 2, 4, 6, 8-10, 13-14, 16, 18, and 35-38 were rejected under 35 U.S.C. 102(b) as being anticipated by Parthasarathy et al., U.S. Patent 6,251,815 B1 for the reasons stated by the Examiner.

The structure defined by the present invention is completely different from and the opposite of the structure described by the reference. There can be no question that the reference describes a structure consisting of a plurality of layers or regions superimposed one upon another transversely through an article to extend in “layer-cake” type arrangement from one face of an article to a spaced-apart opposite face. One layer or region extends across each opposed article surface, such layers being contiguous at most only within the article matrix. No layer or region extends transversely into the article more than 90% of the transverse distance from face to face. The structural disposition of the layers of the reference is selected to resist thermal differences from face to face.

The structure defined by the present invention is the opposite of the structure of the reference. As described and claimed, the regions of the present invention extend, each generally as a column, transversely functionally completely through the article, from

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face to face. The structural disposition of the discrete transverse regions of the present invention is selected to resist thermal differences from one transverse region to another, each region extending face-to face through the article. Description of the present invention clearly is related to regions of different operating temperatures extending functionally completely transversely through the article. For example, in the turbine engine exhaust flap Figure 1, region 12 is a hot spot through the flap and spaced apart from peripheral edge region 14. Similarly in Figure 2, one end region 16 through the panel experiences a temperature different from that of another spaced-apart end region 18 through the panel. In connection with the embodiment of Figure 4, and its associated description on page 8, lines 1 – 22, the member 20 is a woven fabric member including the various regions which, because it is a woven fabric, each extend completely through the fabric or member. Disposing a plurality of such members in a stack while maintaining the same relative position of the regions, can result only in the columnar-type regions of the present invention extending completely transversely through the stack (page 8, lines 7 – 9). On this significant structural kind of difference alone, the present invention cannot be anticipated by or unpatentable over Parthasarathy et al. The prior art structure, without extending completely transversely through the matrix, cannot be capable of performing the same kind of thermal stress resistance in different regions across a face of an article, as is provided by the structure of the present invention. *Aspin what is not closed*

Applicants recognize that the various kinds and fabrics, mats or weaves of fibers, such as the individual Nextel fibers, and various kinds of ceramic matrix materials used as typical examples in their description were known, commercially available and used in the art, for example as shown in the reference. They were included in the present specification as examples of materials used in the evaluation of the present invention. However, description in the prior art of such commercially available materials does not in any way change the structure defined by the reference to anticipate the structure of the present invention discussed in detail above. Claims 2, 4, 6, and 8-10 derive novelty as embodiments of claim 1; and claims 14, 16 and 18 derive novelty as embodiments of claim 13.

For all of these reasons, applicants submit that the reference does not remotely suggest a structure different than that described and reviewed above. One of ordinary skill in the art would not modify the structure of the reference to the extent it would reproduce the different kind of structure defined by the present invention. It is respectfully requested that the Examiner reconsider and withdraw this rejection under 35 U.S.C. 102(b).

Claims 3, 5, 7, 11-12, 15, and 17 were rejected by the Examiner under 35 U.S.C. 103(a) as being unpatentable over Parthasarathy et al., U.S. Patent 6,251,815 B1 for the reasons presented by the Examiner.

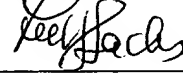
As discussed above, based solely on the significant structural differences between the structure of the reference and that of the present invention, the present invention represented by the embodiments of these rejected claims defines patentable novelty over the reference. In addition, because the regions of the reference [cannot extend completely through the article matrix, with a region extending completely across a face of the article,] the present claimed relationship defined in claims 3 and 15 based on different surface areas of the regions in a surface or face cannot apply to the reference structure having a single surface area. Neither could the reference suggest or make obvious to one of ordinary skill in the art to develop that present relationship that applies to a plurality of surface areas for a different kind of structure. The embodiments of claims 5, 7, 11, 12, and 17 derive their novelty at least from the novelty of claims 5 or 15 from which they depend directly or indirectly.

For all of these reasons and those presented in connection with the rejection above, it is respectfully requested that the Examiner reconsider and withdraw this rejection under 35 U.S.C. 103(a).

Applicants have amended their claims, in response to rejections by the Examiner, to clarify subject matter and have discussed the use and basis of certain terms. In addition, they have presented arguments in respect to the anticipation and patentability of

their invention, represented by the present claims. It is respectfully requested that the Examiner reconsider and withdraw all rejections.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Please amend claims 1, 13, 35, 36, 37 and 38 as follows:

1. (thrice amended) A fiber reinforced composite article comprising a matrix and reinforcing fibers wherein:

the article comprises a plurality of discrete regions each extending substantially completely through the matrix of the article;

a first region of the plurality of regions of the article during operation use subjected to a first temperature and a first stress, and including first fibers having a first strength greater than the first stress; and,

a second region of the plurality of regions of the article during operation use subjected to a second temperature less than the first temperature and a second stress greater than the first stress, and including second fibers having a second strength greater than the second stress.

13. (four times amended) A member comprising reinforcing fibers for reinforcement of a fiber reinforced composite article, the member comprising a matrix and the reinforcing fibers wherein:

the member comprises a plurality of discrete regions each extending substantially completely through the matrix of the member;

a first region of the plurality of the member during operation use subjected to a first temperature and a first stress, and including first fibers having a first strength greater than the first stress; and,

a second region of the plurality of the member during operation use subjected to a second temperature less than the first temperature and a second stress greater than the first stress, and including second fibers having a second strength greater than the second stress.

35. (amended) The article of claim 1 in which:

the first region comprises a first stack of first fiber woven fabric shapes, the first stack extending substantially completely through the first region, the first woven fabric shapes comprising a first combination of reinforcing fibers; and,

the second region comprises a second stack of second fiber woven fabric shapes, the second stack extending substantially completely through the second region, the second woven fabric shapes comprising a second combination of reinforcing fibers having a coefficient of thermal expansion (CTE) during operation of the article different from the first combination.

36. (amended) The article of claim 35 in which the first combination of reinforcing fibers of the first woven fabric shape for the first stack and the second combination of reinforcing fibers of the second woven fabric shape for the second stack each are included in a pattern repeated in a fabric member, a plurality of the fabric members disposed in a composite article stack that maintains the same relative position of the pattern through the composite article stack to provide [providing] the first and second [stacks] regions.

37. (amended) The member of claim 13 in which:

the first region comprises a first stack of first fiber woven fabric shapes, the first stack extending substantially completely through the first region, the first woven fabric shapes comprising a first combination of reinforcing fibers; and,

the second region comprises a second stack of second fiber woven fabric shapes, the second stack extending substantially completely through the second region, the second woven fabric shapes comprising a second combination of reinforcing fibers having a coefficient of thermal expansion (CTE) during operation of the article different from the first combination.

38. (amended) The member of claim 37 in which the first combination of reinforcing fibers of the first woven fabric shape for the first stack and the second combination of reinforcing fibers of the second woven fabric shape for the second stack

each are included in a pattern in a fabric member, a plurality of the fabric members disposed in a composite article stack that maintains the same relative position of the pattern through the composite article stack to provide [providing] the first and second [stacks] regions.